

**Appl. No.** : **10/814,319**  
**Filed** : **March 31, 2004**

### **REMARKS**

Claims 1-74 are pending prior to this paper. Claims 6, 17-18, 24, 26, 31-41, 44-46 and 51-74 were previously withdrawn in response to a restriction requirement. This Amendment amends Claims 1, 7, 9, 11-12, 16, 19, 27, 42-44 and 47-48. After entry of this Amendment, Claims 1-74 remain pending.

#### **Allowable Subject Matter**

Applicants thank the Examiner for allowing Claims 42-43 and 47-50 to issuance. Applicants, however, have amended Claims 42-43 and 47-48 to improve readability. Additionally, the Requirement for Restriction/Election Notice mailed in 01/31/2006 stated that upon allowance of a generic claim, Applicants will be entitled to consideration of claims, which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 C.F.R. 1.141. Applicants therefore request the Examiner to consider allowance of claims 44-46 and 51-54 which depend from the allowed generic claim 42 to issue. Claim 44 has also been amended to improve readability.

#### **Claim Rejections Under 35 U.S.C. § 102**

In the June 1, 2007 Office Action, the Examiner rejected Claims 1-4, 7-9, 11-13, 19-21, 23 and 27-28 under 35 U.S.C. §102(e) as being anticipated by Lin, et al (U.S. Patent No. 6,570,892).

With respect to Claim 1, the Office Action states that Lin discloses a pulsed fiber laser system outputting pulses having a duration and width comprising a modelocked fiber oscillator outputting optical pulses, an amplifier optically connected to said modelocked fiber oscillator to receive said optical pulses, said amplifier comprising a gain medium that imparts gain to said optical pulses and a variable attenuator disposed between said modelocked fiber oscillator and said amplifier, said variable attenuator having an adjustable transmission such that the amplitude of said optical pulses that are coupled from said modelocked fiber oscillator to said amplifier can be reduced and a compressor to compress the pulse to reduce the pulse width wherein said amplifier is configured such that attenuating said amplitude of the optical pulses coupled from said modelocked fiber oscillator to said amplifier reduces the pulse width.

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Applicants respectfully disagree with the Office Action. Claim 1 of the present application as amended recites, *inter alia*, a pulsed fiber laser comprising a modelocked fiber oscillator, an amplifier disposed external to the modelocked fiber oscillator, a variable attenuator disposed between the modelocked fiber oscillator and the amplifier external to the modelocked fiber oscillator and a compressor disposed external to the fiber oscillator.

Lin does not teach or suggest an amplifier disposed external to the modelocked fiber oscillator, a variable attenuator disposed between said modelocked fiber oscillator and said amplifier external to said modelocked fiber oscillator and a compressor disposed external to said fiber oscillator. See Figure 1, Figures 4 A-F, col. 4, lines 13-22 and col. 10 lines 5-9 of the Lin patent.

Applicants respectfully assert that Lin does not teach or suggest all the elements or the combination thereof of Claim 1 and therefore Claim 1 is patentable over Lin.

Claims 2-4 and 7-8 depend from Claim 1. As described above, Claim 1 is patentable over Lin. Thus Claims 2-4 and 7-8 include all of the features of Claim 1 and recite unique combinations of additional features not taught or suggested by Lin and are therefore patentable over Lin. Applicants respectfully request, therefore, that the rejections of Claims 2-4 be withdrawn.

With respect to Claim 9, the Office Action states that Lin discloses a method of producing compressed laser pulses comprising substantially modelocking longitudinal modes of a laser cavity to repetitively produce a laser pulse, amplifying said laser pulse, chirping said laser pulse thereby changing the optical frequency of said optical pulse over time, compressing said laser pulse by propagating different optical frequency components of said laser pulse differently to produce compressed laser pulses having a shortened temporal duration and selectively attenuating the amplitude of said laser pulse prior to said amplifying of said laser pulse to further shorten said duration of said compressed laser pulses.

Applicants respectfully disagree with the Office Action. Claim 9 as amended recites, *inter alia*, using an amplifier downstream from the laser cavity, attenuating the amplitude of the laser pulse prior to amplification using an attenuator downstream from laser cavity and compressing the laser pulse using a compressor downstream from the laser cavity.

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Lin does not teach or suggest amplifying the laser pulse using an amplifier downstream from the laser cavity, compressing the laser pulse using a compressor downstream from the laser cavity and selectively attenuating the amplitude of the laser pulse using an attenuator downstream from the laser cavity. See Figure 1, Figures 4 A-F, col. 4, lines 13-22 and col. 10 lines 5-9 of the Lin patent.

Applicants respectfully assert that Lin does not teach or suggest all the elements or the combination thereof of Claim 9 and therefore Claim 9 is patentable over Lin.

Claim 11 depends from Claim 9. As described above, Claim 9 is patentable over Lin. Thus Claim 11 includes all of the features of Claim 9 and recites a unique combination of additional features not taught or suggested by Lin and is therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claim 11 be withdrawn.

With respect to Claim 12, the Office Action states that Lin discloses a method of manufacturing a fiber laser comprising, modelocking a fiber based oscillator that outputs optical pulse, optically coupling an amplifier to said fiber based oscillator through a variable attenuator so as to feed said optical pulses from said fiber based oscillator through said variable attenuator and to said amplifier, and adjusting the variable attenuator based on a measurement of said optical pulses to reduce the intensity of the optical pulses delivered to said amplifier and to shorten the pulse.

Applicants respectfully disagree with the Office Action. Claim 12 as amended recites, *inter alia*, a method of manufacturing a high power short pulse fiber laser wherein an amplifier and a variable attenuator are disposed downstream from a fiber-based oscillator.

Lin does not teach or suggest a method of manufacturing a high power short pulse fiber laser wherein an amplifier and a variable attenuator are disposed downstream from said fiber-based oscillator.

Applicants respectfully assert that Lin does not teach or suggest all the elements or the combination thereof of Claim 12 and therefore Claim 12 is patentable over Lin.

Claim 13 depends from Claim 12. As described above, Claim 12 is patentable over Lin. Thus Claim 13 includes all of the features of Claim 12 and recites a unique combination of additional features not taught or suggested by Lin and is therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claim 13 be withdrawn.

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With respect to Claim 19, the Office Action states that Lin discloses that described in the rejection to Claim 1 and including the use of a spectral filter disposed to receive said optical output of the modelocked fiber oscillator prior to reaching said amplifier, said spectral filter having a spectral transmission with a band edge that overlaps the spectral power distribution of the optical output of the modelocked fiber oscillator to attenuate a portion of the spectral power distribution and thereby reduce the spectral bandwidth, the pulse width of said optical pulses coupled from said modelocked fiber oscillator to said fiber amplifier thereby being reduced.

Applicants respectfully disagree with the Office Action. Claim 19 as amended recites, *inter alia*, a pulsed fiber laser outputting pulses comprising a modelocked fiber oscillator, an amplifier disposed external to the modelocked fiber oscillator, a spectral filter disposed external to the modelocked fiber oscillator.

Lin does not teach or suggest an amplifier disposed external to the modelocked fiber oscillator and a spectral filter disposed external to the modelocked fiber oscillator.

Applicants respectfully assert that Lin does not teach or suggest all the elements or the combination thereof of Claim 19 and therefore Claim 19 is patentable over Lin.

Claims 20-21 and 23 depend from Claim 19. As described above, Claim 19 is patentable over Lin. Thus Claims 20-21 and 23 include all of the features of Claim 19 and recite unique combinations of additional features not taught or suggested by Lin and are therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claims 20-21 and 23 be withdrawn.

With respect to Claim 27, the Office Action states that Lin discloses a method of producing the optical pulses as outlined in the rejection to Claim 19 above.

Applicants respectfully disagree with the Office Action. Claim 27 as amended recites, *inter alia*, an amplifier disposed external to the fiber resonant cavity, a compressor disposed external to the fiber resonant cavity and a spectral filter disposed external to the fiber resonant cavity.

Lin does not teach or suggest an amplifier disposed external to the fiber resonant cavity, a compressor disposed external to the fiber resonant cavity and a spectral filter external to the fiber resonant cavity.

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Applicants respectfully assert that Lin does not teach or suggest all the elements or the combination thereof of Claim 27 and therefore Claim 27 is patentable over Lin.

Claim 28 depends from Claim 27. As described above, Claim 27 is patentable over Lin. Thus Claim 28 includes all of the features of Claim 27 and recites a unique combination of additional features not taught or suggested by Lin and is therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claim 28 be withdrawn.

**Claim Rejections Under 35 U.S.C. § 103**

The Examiner rejected Claims 5, 10, 14-16, 22, 25 and 29-30 under 35 U.S.C. §103(a) as being anticipated by Lin.

Claim 5 depends from Claim 1. As described above, Claim 1 is patentable over Lin. Thus Claim 5 includes all of the features of Claim 1 and recites a unique combination of additional features not taught or suggested by Lin and is therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claim 5 be withdrawn.

Claim 10 depends from Claim 9. As described above, Claim 9 is patentable over Lin. Thus Claim 10 includes all of the features of Claim 9 and recites a unique combination of additional features not taught or suggested by Lin and is therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claim 10 be withdrawn.

Claims 14-16 depend from Claim 12. As described above, Claim 12 is patentable over Lin. Thus Claims 14-16 include all of the features of Claim 12 and recite unique combinations of additional features not taught or suggested by Lin and are therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claims 14-16 be withdrawn.

Claims 22 and 25 depend from Claim 19. As described above, Claim 19 is patentable over Lin. Thus Claims 22 and 25 include all of the features of Claim 19 and recite unique combinations of additional features not taught or suggested by Lin and are therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claims 22 and 25 be withdrawn.

Claims 29-30 depend from Claim 27. As described above, Claim 27 is patentable over Lin. Thus Claims 29-30 include all of the features of Claim 27 and recite unique combinations of additional features not taught or suggested by Lin and are therefore patentable over Lin. Applicants respectfully request, therefore, that the rejection of Claims 29-30 be withdrawn.

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**No Disclaimers or Disavowals**

Although the present communication may include alterations to the application or claims or characterizations of claim scope, Applicants are not conceding in this application that previously pending claims are not patentable. Rather, any alterations are being made to facilitate expeditious prosecution of this application. Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

**SUMMARY**

Applicants respectfully submit that all of the pending claims are allowable. Applicants respectfully request that the Examiner withdraw the rejections and pass Claims 1-5, 7-16, 19-23, 25 and 27-30 to allowance.

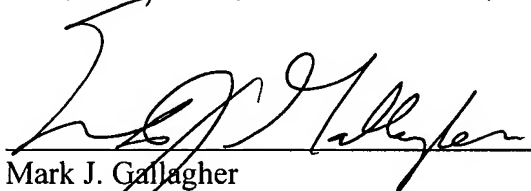
If examiner has any questions regarding the foregoing he may contact the undersigned telephonically at (949) 760-0404.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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